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EXAMINER	
CHOW, CHARLES CHIANG	
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2685	5

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No. 10/035,948	Applicant(s) KHAN ET AL.	
	Examiner Charles Chow	Art Unit 2685	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 March 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) _____ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 December 2001* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

Detailed Action

Claim Objections

1. Claim 1 is objected to because of the following informalities: The "radio base stations station" in line 3 of claim 1 is incorrect. It should be "radio base stations". Appropriate correction is required.

2. Claim 13 is objected to because of the following informalities: The "sub-quries" in lines 4 of claim 13 is incorrect. It should be "sub-queues". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4-5, 9, 23, 26, 37, 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 6490,264 B1) in view of Fontenot (US 4,616,359).

Regarding **claim 1**, Suzuki teaches a radio access network (Fig. 4, access network for mobile terminals 501-1 to 501-5; Fig. 6) comprising a base station controller BSC (base station control device 1, Fig. 6), plurality of radio base stations (2A-2C) connected to the base station controller (1) in a daisy chain configuration via a shared communication link (base stations 2A to 2C, Fig. 6, are connected in daisy chain with shared communication links, sharing communication links between base station controller 1 and base stations 2A, and links between 2A and 2B, 2B and 2C, col. 5, line 66 to col. 7, line 40), controller and each radio base station comprises a node in a chain (ATM cell transmitter 59 and ATM receiver 61 of the base station control

device 1 in Fig. 8; the ATM cell receiver, ATM cell transmitter of the base stations 2A-2C, Fig. 12). Suzuki fails to teach the first priority queue. However, Fontenot teaches the first priority queue (the queues 12-15, 21-24, in Fig. 1, for each node, abstract, the permit packet is prioritized at the front of the queue ahead of all data packets and behind any permit packets already in the queue, col. 4, lines 5-19), the at least one node (node 12-15, 21-24) in the chain (formed by nodes 16-19, 25-28) including a first priority queue for scheduling packets to be transmitted via the shared communication link to an adjacent node in the chain (the scheduling permit packet ahead of data packet which is sent from node to node, for obtaining preferential permit at destination node, for sending the data packet, in abstract; the queue stores the permit packet, for scheduling transmission of data packet, according to the queue length threshold, the priority sequence, ahead of all data packets and behind any permit packets already in the queue, col. 4, lines 5-19), the first priority queue schedules packets for transmission over the shared communication link based on a location of a terminating node for each packet (the queue has the priority list for permit packet used for scheduling data packet to be transmitted from originating to destination terminal, col. 4, lines 15-19; the permit packet is sent over the shared transmission link between base station controller, base stations; the based on the location of destination terminal which has a different current queue length left, for positioning of the permit packet in the queue, col. 4, lines 5-49; col. 3, line 47 to col. 4, line 4; steps in Fig. 2; the sending each permit packet according to priority from node into destination terminal location in last step of Fig. 2; steps in Fig. 3). Fontenot teaches efficient adaptive packet transmission between nodes, for reducing the

network congestion by sending permit packet first, for obtaining the authorized packet transmission based on the destination queue length and the position of the permit packet in the queue at the destination terminal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki with Fontenot's permit packet priority queue list, such that congestion of packet transmission could be reduced.

Regarding **claim 4,** Fontenot teaches the first priority queue is disposed at an input of the at least one node (the queue 12-15, 25-28 are for storing the received permit packet from the input of each destination node terminal, Fig. 1, Fig. 7).

Regarding **claim 5**, Suzuki teaches shared communication link is a forward communication link for transmitting from BSC to radio base station (the communication link in Fig. 1, is from base station control device 1 to base station device 2A-2C, the partitioned data from BSC 1 to base stations 2A-2C, col. 6, lines 1-13).

Regarding **claim 9**, Suzuki teaches a reverse communication link from radio base station to BSC (the communication link having arrow shown from 2C to 2B, 2B to 2A, 2A to 1, in Fig. 6).

Regarding **claim 23**, Suzuki teaches a radio base station (2A-2C) for radio access network (Fig. 4, access network for mobile terminals 501-1 to 501-5) comprising one node in a series connected nodes on a shared communication link (the BSC 1 in series connection with base stations 2A-2C, via a shared communication links between base station controller 1 and base stations 2A, and links between 2A and 2B, 2B and 2C, col. 5, line 66 to col. 7, line 40), each radio base station comprises an input a

chain (ATM receiver 61 of the base station control device 1 in Fig. 8; the ATM cell receiver of the base stations 2A-2C, Fig. 12). Suzuki fails to teach the first priority queue. However, Fontenot teaches the first priority queue (the queues 12-15, 21-24, in Fig. 1, for each node, abstract, the permit packet is prioritized at the front of the queue ahead of all data packets and behind any permit packets already in the queue, col. 4, lines 5-19), a first priority queue for scheduling packets to be transmitted via the shared communication link to an adjacent node in the chain (the scheduling permit packet ahead of data packet which is sent from node to node, for obtaining preferential permit at destination node, for sending the data packet, in abstract; the queue stores the permit packet, for scheduling transmission of data packet, according to the queue length threshold, the priority sequence, ahead of all data packets and behind any permit packets already in the queue, col. 4, lines 5-19), wherein the first priority queue schedules packets for transmission over the shared communication link based on a location of a terminating node for each packet (the queue has the priority list for permit packet used for scheduling data packet to be transmitted from originating to destination terminal, col. 4, lines 15-19; the permit packet is sent over the shared transmission link between base station controller, base stations; the based on the location of destination terminal which has a different current queue length left, for positioning of the permit packet in the queue, col. 4, lines 5-49; col. 3, line 47 to col. 4, line 4; steps in Fig. 2; the sending each permit packet according to priority from node into destination terminal location in last step of Fig. 2; steps in Fig. 3). Fontenot teaches efficient adaptive packet transmission between nodes, for reducing the network congestion by sending permit packet first, for obtaining the authorized

packet transmission based on the destination queue length and the position of the permit packet in the queue at the destination terminal.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki with Fontenot's permit packet priority queue list, such that congestion of packet transmission could be reduced.

Regarding **claim 26**, Fontenot teaches the first priority queue is disposed at an input of the at least one node (the queue 12-15, 25-28 are for storing the received permit packet from the input of each destination node terminal, Fig. 1, Fig. 7).

Regarding **claim 37**, Suzuki teaches a method implemented in a radio access network (Fig. 4, access network for mobile terminals 501-1 to 501-5) comprising plurality of radio base stations (2A-2C) connected in daisy chain configuration with to the base station controller (1, Fig. 4, Fig. 6, the base stations 2A to 2C, Fig. 6, are connected in daisy chain with shared communication links, sharing communication links between base station controller 1 and base stations 2A, and links between 2A and 2B, 2B and 2C, col. 5, line 66 to col. 7, line 40), comprising receiving packets at a radio base station in a chain of radio base stations to be transmitted to other radio base station in the chain of radio base stations (the ATM cell in Fig. 2 and Fig. 3; the receiving packets, DATAa to DATAc, DATAe to DATAf, Pad, and header in Fig. 6 at base station, 2A-2C, are to be transmitting to other base station in the chain), determining the location of the terminating ration base station in said chain of the radio base station for each of the packet to be transmitted (the determining of the location associated with base stations 2A-2C for the allocation pattern in header for each base station 2A-2C, DATA a/d, b/e, c/f in Fig. 5, Fig. 9, the VCI in Fig. 6 for partitioning

of DATAa to DATAf for the forward, reverse link for each base station 2A-2C located in the daisy chain location), Susuki fails to teach the determining a priority level of the packets based on the location of the terminating radio base stations for the packets. However, Fontenot teaches this feature (the queue has the priority list for permit packet used for scheduling data packet to be transmitted from originating to destination terminal, col. 4, lines 15-19; the permit packet is sent over the shared transmission link between base station controller, base stations; the based on the location of destination terminal which has a different current queue length left, for positioning of the permit packet in the queue, col. 4, lines 5-49; col. 3, line 47 to col. 4, line 4; steps in Fig. 2; the sending each permit packet according to priority from node into destination terminal location in last step of Fig. 2; steps in Fig. 3), the scheduling the packets for transmission according to the priority level of the of the packet (the scheduling permit packet ahead of data packet which is sent from node to node, for obtaining preferential permit at destination node, for sending the data packet, in abstract; the queue stores the permit packet, for scheduling transmission of data packet, according to the queue length threshold, the priority sequence, ahead of all data packets and behind any permit packets already in the queue, col. 4, lines 5-19), Fontenot teaches efficient adaptive packet transmission between nodes, for reducing the network congestion by sending permit packet first, for obtaining the authorized packet transmission based on the destination queue length and the position of the permit packet in the queue at the destination terminal. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify

Suzuki with Fontenot's permit packet priority queue list, such that congestion of packet transmission could be reduced.

Regarding **claim 36**, Fontenot teaches the first priority queue drops packets from the sub-queue after a predetermined period of time has elapsed from the time the packets were placed in the queue, (the time out discard the permit packet in the queue, abstract, col. 4, lines 31-40). Ofek taught the sub-queues, B-1 to B-k, for the CBR, VBR. FAST, Best effort, packets, using the same combining reasons in claim 13.

4. Claims 2-3, 10-11, 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, as applied to claim 1 above, and further in view of Falco et al. (US 6,501,733 B1).

Regarding **claim 2**, Suzuki and Fontenot fail to teach the first priority queue is disposed at an output of the at least one node. However, Falco et al. (Falco) teache this claimed features, the output buffer memory 36 has first queue to Nth queue 22-24, Fig. 1, according to transmission priority scheme in col. 2, lines 33-46; the scheduling of the transmitted data in queue for data received in input holding memory 23 in the node 14 based on the scheduler 28, abstract, Fig. 2A-2B, col. 4, lines 20-65; col. 9, line 10 to col. 12 line 34), for the predicting a transmission departure time, to reducing the transmission waiting time (abstract, step S16, Fig. 2). Falco teaches the efficient data transmission flow with reduced buffer memory requirement (col. 1, line 41 to col. 2, line 12) by using the scheduler 28, output buffer memory 36, rate state detector 26. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki, Fontenot, with Falco's output queues, first

queue, Nth queue, scheduler 28, such that packet transmission could be efficient with reduced memory requirement.

Regarding **claim 3,** Fontenot teaches the second priority queue disposed at an input of at least one node (the input queue 12-15, 25-28 for each node 16-19, 25-28, Fig. 1).

Regarding **claim 10**, Falco teaches the first priority queue is located at an output of each radio base station (the output buffer memory 36 has first queue to Nth queue 22-24, Fig. 1, according to transmission priority scheme in col. 2, lines 33-46; the scheduling of the transmitted data in queue for data received in input holding memory 23 in the node 14 based on the scheduler 28, abstract, Fig. 2A-2B, col. 4, lines 20-65; col. 9, line 10 to col. 12 line 34), for the predicting a transmission departure time, to reducing the transmission waiting time, abstract, step S16, Fig. 2). Suzuki teaches the radio base station connected to the shared communication link (the base stations 2A to 2C, Fig. 6, are connected in daisy chain with shared communication links, sharing communication links between base station controller 1 and base stations 2A, and links between 2A and 2B, 2B and 2C, col. 5, line 66 to col. 7, line 40).

Regarding **claim 11**, Fontenot teaches a second priority queue is located at an input of each radio base station (the input queue 12-15, 25-28 for each node 16-19, 25-28, Fig. 1). Suzuki teaches the radio base station connected to the shared communication link (the base stations 2A to 2C, Fig. 6, are connected in daisy chain with shared communication links, sharing communication links between base station controller 1 and base stations 2A, and links between 2A and 2B, 2B and 2C, col. 5, line 66 to col. 7, line 40).

Regarding **claim 24**, Falco teaches the first priority queue is located at an output of the radio base station (the output buffer memory 36 has first queue to Nth queue 22-24, Fig. 1, according to transmission priority scheme in col. 2, lines 33-46; the scheduling of the transmitted data in queue for data received in input holding memory 23 in the node 14 based on the scheduler 28, abstract, Fig. 2A-2B, col. 4, lines 20-65; col. 9, line 10 to col. 12 line 34), for the predicting a transmission departure time, to reducing the transmission waiting time, abstract, step S16, Fig. 2).

Regarding **claim 25**, Fontenot teaches a second priority queue is located at an input of each radio base station (the input queue 12-15, 25-28 for each node 16-19, 25-28, Fig. 1).

5. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, as applied to claim 1 above, and further in view of Proctor et al. (US 6,125,110).

Regarding **claim 6**, Suzuki and Fontenot fail to teach the first priority queue is located at an output of the radio base station controller. However, Proctor teaches this claimed features, the BAC 10 having network arbiter 350 (Fig. 4), the arbitration 350 has output data buffer 380 for buffering data based on the priority 1-4, using the packet analyzer 370 (Fig. 4; col. 7, line 61 to col. 8, line 65), for each network abiters 350, 352, 354), for the ordered packet transmission (abstract). Proctor teaches the method for reducing the system delay for packet transmission for maintaining high channel throughput, by utilizing delay analyzer to determine the packet transmission priority (col. 2, lines 15-59). Therefore, it would have been obvious to one of ordinary

skill in the art at the time of invention to modify Suzuki, Fontenot, with Proctor's packet analyzer 370 for determining of the transmission priority and output priority buffer 380, such that the transmission delay could be reduced by analyzing the delay for packet priority.

6. Claims 7-8, 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, as applied to claim 1 above, and further in view of Agrawal et al. (US 6,108,316).

   Regarding **claim 7**, Suzuki and Fontenot fail to teach the first priority queue is located at an output of at least one base station. However, Agrawal et al. (Agrawal) teaches this features, the base station B has the queue buffer 306 which has output queues for different virtual circuit VC1-VC4, and the input queues for different priority for VC1-VC4 (Fig. 3, col. 5, line 6 to col. 6, line 54). Agrawal teaches the priority scheduling for allowing mobile terminal to access base station due to the battery power is low for the mobile terminal (abstract, col. 1, lines 26-67). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki, Fontenot, with Agrawal's output queues at base station B, such that communication link could be scheduled according to the priority of the battery power level for operating the mobile terminal.

   Regarding **claim 8,** Agrawal teaches a second priority queue is located at an input of each radio base station (input queues for different priority for VC1-VC4, Fig. 3, col. 5, line 6 to col. 6, line 54).

Regarding **claim 40**, Agrawal teaches the first priority queue is located at an output of at least one base station (the base station B has the queue buffer 306 which has output queues for different virtual circuit VC1-VC4, and the input queues for different priority for VC1-VC4 (Fig. 3, col. 5, line 6 to col. 6, line 54).

7. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, Falco, as applied to claim 11 above, and further in view of Linneweh, Jr. et al. (US 5,862,485).

   Regarding **claim 12**, Suzuki and Fontenot fail to teach the first priority is located at the input of the base station controller. However, Linneweh Jr. et al. (Linneweh) teach this features, the base station controller BSC has priority queue for allocation of available communication resource, for base station handoff priority (col. 7, line 60 to col. 8, line 10, Fig. 3). Linneweh teaches the additional feature for allocation resource, communication channel, to support priority calls, having the priority queue in the base station controller, for priority handoff between base stations (col. 1, line 60 to col. 2, line 58), such that the priority call can be handoff according to the priority queue without congestion. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki, Fontenot, Falco with Linneweh's priority queue at base station controller for handoff priority calls, such that the priority call could be handoff according to the priority queue without congestion.

8. Claims 13-16, 20, 27-30, 34, 38-39, 43-45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, as applied to claim 1 above, and further in view of Ofek et al. (US 6,778,536 B1).

Regarding **claim 13**, Suzuki and Fontenot fail to teach the priority queue comprising a plurality of sub-queue corresponding to different priority level. However, Ofek et al. teaches this feature (the sub-queues for constant bit rate CBR, variable bit rate, VBR, Fast, and Msct, of the time frame queuing 36C in Fig. 10, col. 21, lines 21-42, for the scheduling controller 36-1 in Fig. 7, in the wavelength division multiplexing WDM data link system having switch node A-D, Fig. 3, col. 14, lines 20-31; according to the scheduling header information which has priority information P1/P2 in 35P, Fig. 6, col. 18, line 42 to col. 19, lines 17), a classifier to determine the priority level of the packets to be transmitted to the adjacent node and to route the packets to one of the sub-queues based on the priority levels of the packets (the packet scheduling and rescheduling controller 36 A, classifier, for classifying the priority level according to the P1/P1 priority information in the header 35p , Fig. 10, col. 21, lines 43-61), a scheduler to fetch the packet from the sub-queues for transmission according to their priority level (the scheduler, SBCC 36D, for read, select sub-queues B-1 to B-k, using 36R1, 36R1 in col. 21, line 62 to col. 22, lines 40). Ofek teaches a packet communication network with accurate scheduling by utilizing GPS reference timing signal (abstract), to improve the switching delay (col. 5, lines 22-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki, Fontenot, with Ofek's packet sub-queue, the packet scheduling 36 A classifier, the select buffer congestion controller

36D output scheduler, such that node switching delay could be reduced, for high speed operation.

Regarding **claim 14**, Ofek teaches the scheduler fetches packets for transmission from the highest priority level sub-queue having packets to be transmitted, (the sub-queue, for CBR, VBR, best effort, having high, low priority in 35P, col. 18, lines 56-65, col. 22, lines 33-40).

Regarding **claim 15**, Ofek teaches the classifier determines the priority levels of the packets to be transmitted from information contained in packet header (the header has having high, low priority in 35P for P1/P2, Fig. 10, col. 18, lines 56-65, for the classifier to determine the priority level).

Regarding **claim 16**, Ofek teaches the packets are IP packets and wherein the packet headers of the IP packets contain priority data (the IP packet in col. 13, lines 13-25, Fig. 6; the 35p having the priority data P1/P2, col. 18, lines 52-65; col. 21, lines 55-61).

Regarding **claim 20**, Fontenot teaches the first priority queue drops packets from the sub-queue after a predetermined period of time has elapsed from the time the packets were placed in the queue, (the time out discard the permit packet in the queue, abstract, col. 4, lines 31-40). Ofek taught the sub-queues, B-1 to B-k, for the CBR, VBR. FAST, Best effort, packets, using the same combining reasons in claim 13.

Regarding **claim 27**, Ofek et al. teaches this feature (the sub-queues for constant bit rate CBR, variable bit rate, VBR, Fast, and Msct, of the time frame queuing 36C in Fig. 10, col. 21, lines 21-42, for the scheduling controller 36-1 in Fig. 7, in the wavelength division multiplexing WDM data link system having switch node A-D,

Fig. 3, col. 14, lines 20-31; according to the scheduling header information which has priority information P1/P2 in 35P, Fig. 6, col. 18, line 42 to col. 19, lines 17), a classifier to determine the priority level of the packets to be transmitted to the adjacent node and to route the packets to one of the sub-queues based on the priority levels of the packets (the packet scheduling and rescheduling controller 36 A, classifier, for classifying the priority level according to the P1/P1 priority information in the header 35p , Fig. 10, col. 21, lines 43-61), a scheduler to fetch the packet from the sub-queues for transmission according to their priority level (the scheduler, SBCC 36D, for read, select sub-queues B-1 to B-k, using 36R1, 36R1 in col. 21, line 62 to col. 22, lines 40).

Regarding **claim 28**, Ofek teaches the scheduler fetches packets for transmission from the highest priority level sub-queue having packets to be transmitted, (the sub-queue, for CBR, VBR, best effort, having high, low priority in 35P, col. 18, lines 56-65, col. 22, lines 33-40).

Regarding **claim 29**, Ofek teaches the classifier determines the priority levels of the packets to be transmitted from information contained in packet header (the header has having high, low priority in 35P for P1/P2, Fig. 10, col. 18, lines 56-65, for the classifier to determine the priority level).

Regarding **claim 30**, Ofek teaches the packets are IP packets and wherein the packet headers of the IP packets contain priority data (the IP packet in col. 13, lines 13-25, Fig. 6; the 35p having the priority data P1/P2, col. 18, lines 52-65; col. 21, lines 55-61).

Regarding **claim 34**, Fontenot teaches the first priority queue drops packets from the sub-queue after a predetermined period of time has elapsed from the time the packets were placed in the queue, (the time out discard the permit packet in the queue, abstract, col. 4, lines 31-40). Ofek taught the sub-queues, B-1 to B-k, for the CBR, VBR. FAST, Best effort, packets, using the same combining reasons in claim 13.

Regarding **claim 38**, Ofek teaches the packets are IP packets and wherein the packet headers of the IP packets contain priority data (the IP packet in col. 13, lines 13-25, Fig. 6; the 35p having the priority data P1/P2, col. 18, lines 52-65; col. 21, lines 55-61).

Regarding **claim 39**, Ofek teaches the packets are IP packets and wherein the packet headers of the IP packets contain priority data (the IP packet in col. 13, lines 13-25, Fig. 6; the 35p having the priority data P1/P2, col. 18, lines 52-65; col. 21, lines 55-61).

Regarding **claim 43**, Ofek et al. teaches this feature (the sub-queues for constant bit rate CBR, variable bit rate, VBR, Fast, and Msct, of the time frame queuing 36C in Fig. 10, col. 21, lines 21-42, for the scheduling controller 36-1 in Fig. 7, in the wavelength division multiplexing WDM data link system having switch node A-D, Fig. 3, col. 14, lines 20-31; according to the scheduling header information which has priority information P1/P2 in 35P, Fig. 6, col. 18, line 42 to col. 19, lines 17), a classifier to determine the priority level of the packets to be transmitted to the adjacent node and to route the packets to one of the sub-queues based on the priority levels of the packets (the packet scheduling and rescheduling controller 36 A, classifier, for classifying the priority level according to the P1/P1 priority information

in the header 35p , Fig. 10, col. 21, lines 43-61), a scheduler to fetch the packet from the sub-queues for transmission according to their priority level (the scheduler, SBCC 36D, for read, select sub-queues B-1 to B-k, using 36R1, 36R1 in col. 21, line 62 to col. 22, lines 40).

Regarding **claim 44**, Ofek teaches the scheduler fetches packets for transmission from the highest priority level sub-queue having packets to be transmitted, (the sub-queue, for CBR, VBR, best effort, having high, low priority in 35P, col. 18, lines 56-65, col. 22, lines 33-40).

Regarding **claim 45**, Ofek teaches the scheduler fetches packets for transmission from the highest priority level sub-queue having packets to be transmitted, (the sub-queue, for CBR, VBR, best effort, having high, low priority in 35P, col. 18, lines 56-65, col. 22, lines 33-40). Ofek taught the sub-queues, B-1 to B-k, for the CBR, VBR. FAST, Best effort, packets, using the same combining reasons in claim 13.

9. Claims 17-19, 22, 31-33, 36, 41-42, 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, Ofek, as applied to claim 15 above, and further in view of Pei et al. (US 6,167,049).

Regarding **claim 17**, Suzuki and Fontenot fail to teach the packet headers of the ATM packets contains circuit identifiers used by the classifier to determine the priority levels of the packets to be transmitted. Pei et al. (Pei) teaches this feature (the engine 31 using the header information to identify a particular ATM circuit, col. 9, line 65 to col. 10, lines 11), having the table in Fig. 5-6, to related the priority levels to the virtual circuit VC1-VC5, col. 11, line 48 to col. 16, line 65), a scheduler for schedules

available bit rate ABR, to maintain minimum bit rate MCR for the ATM circuit, the scheduler for scheduling traffic for high priority service (abstract, steps in Fig. 9). Pei teaches the reliable scheduling of the transmitting bit rate with minimum non-zero cell transmission guarantee, the combination of static, dynamic scheduling (col. 3, lines 29-65). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki, Fontenot, Ofek with Pei's ATM header has circuit identifier, such that the transmission bit rate could be guaranteed for minimum transmission rate.

Regarding **claim 18**, Pei teaches a database storing priority data used by the classifier to determine the priority level of packets to be transmitted (the static table, dynamic table in memory database, col. 4, lines 3-31, having associated priority, Fig. 5-7D, and the scheduler utilizing the table for providing the priority service, col. 4, lines 32-59).

Regarding **claim 19**, Pei teaches the database stores a lookup table associated the circuit identifiers extracted from the headers of the ATM packet to corresponding priority levels for the packets to be transmitted (the lookup table in Fig. 5-7D with high, low priority associated with VC1-VC5 extracted from ATM header, col. 10, lines 1-11).

Regarding **claim 22**, Ofek teaches a scheduler fetches packets from the sub-queues so as to maintain a minimum throughput rate for each sub-queue (the select buffer congestion controller 36D scheduling the fetched packet from sub-queue for CBR, VBR, FAST Fig. 10, col. 21, line 62 to col. 22, lines 40, for scheduling of the variable bit rate VBT throughput).

Regarding **claim 31,** Pei teaches the packet headers of the ATM packets contains circuit identifiers used by the classifier to determine the priority levels of the packets to be transmitted (the engine 31 using the header information to identify a particular ATM circuit, col. 9, line 65 to col. 10, lines 11), having the table in Fig. 5-6, to related the priority levels to the virtual circuit VC1-VC5, col. 11, line 48 to col. 16, line 65), a scheduler for schedules available bit rate ABR, to maintain minimum bit rate MCR for the ATM circuit, the scheduler for scheduling traffic for high priority service (abstract, steps in Fig. 9). Pei teaches the reliable scheduling of the transmitting bit rate with minimum non-zero cell transmission guarantee, the combination of static, dynamic scheduling (col. 3, lines 29-65).

Regarding **claim 32**, Pei teaches a database storing priority data used by the classifier to determine the priority level of packets to be transmitted (the static table, dynamic table in memory database, col. 4, lines 3-31, having associated priority, Fig. 5-7D, and the scheduler utilizing the table for providing the priority service, col. 4, lines 32-59).

Regarding **claim 33**, Pei teaches the database stores a lookup table associated the circuit identifiers extracted from the headers of the ATM packet to corresponding priority levels for the packets to be transmitted (the lookup table in Fig. 5-7D with high, low priority associated with VC1-VC5 extracted from ATM header, col. 10, lines 1-11).

Regarding **claim 36**, Ofek teaches a scheduler fetches packets from the sub-queues so as to maintain a minimum throughput rate for each sub-queue (the select buffer congestion controller 36D scheduling the fetched packet from sub-queue for CBR,

VBR, FAST Fig. 10, col. 21, line 62 to col. 22, lines 40, for scheduling of the variable bit rate VBT throughput).

Regarding **claim 41**, Pei teaches a database storing priority data used by the classifier to determine the priority level of packets to be transmitted (the static table, dynamic table in memory database, col. 4, lines 3-31, having associated priority, Fig. 5-7D, and the scheduler utilizing the table for providing the priority service, col. 4, lines 32-59).

Regarding **claim 42**, Pei teaches the database stores a lookup table associated the circuit identifiers extracted from the headers of the ATM packet to corresponding priority levels for the packets to be transmitted (the lookup table in Fig. 5-7D with high, low priority associated with VC1-VC5 extracted from ATM header, col. 10, lines 1-11).

Regarding **claim 48**, Ofek teaches a scheduler fetches packets from the sub-queues so as to maintain a minimum throughput rate for each sub-queue (the select buffer congestion controller 36D scheduling the fetched packet from sub-queue for CBR, VBR, FAST Fig. 10, col. 21, line 62 to col. 22, lines 40, for scheduling of the variable bit rate VBT throughput).

9. Claims 21, 35, 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Fontenot, Ofek, as applied to claim 13 above, and further in view of Earnshaw et al. (US 2003/0012,212 A1).

Regarding **claim 21**, Suzuki, Fontenot and Ofek fail to teach the first priority queue promotes packets for immediate transmission after predetermined period of time has

elapsed. However, Earnshaw et al. (Earnshaw) teaches this claimed features (if the message not received, a panic timer expires and the transmitter sends one or more copues of the corresponding data block to receiver before occurrence of the delay bound, for the immediate transmitting of packet, once the panic timer is timed out, abstract, Fig. 3). Earnshaw teaches the on time packet delivery [0001], with improved delay. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Suzuki, Fontenot, Ofek with Earnshaw's transmitting corresponding packet once panic timer is expired, such that the packet could be delivered on time.

Regarding **claim 35**, Earnshaw teaches the first priority queue promotes packets for immediate transmission after predetermined period of time has elapsed (if the message not received, a panic timer expires and the transmitter sends one or more copues of the corresponding data block to receiver before occurrence of the delay bound, for the immediate transmitting of packet, once the panic timer is timed out, abstract, Fig. 3).

Regarding **claim 47**, Earnshaw teaches the promoting packet for immediate transmission after predetermined period of time has elapsed (if the message not received, a panic timer expires and the transmitter sends one or more copues of the corresponding data block to receiver before occurrence of the delay bound, for the immediate transmitting of packet, once the panic timer is timed out, abstract, Fig. 3).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. US 6,765,905 B2, July 2004, Gross et al. teaches the marking of the high priority packet in the priority queue (50, 52, 53) in plurality of network nodes 10, 15, 20, 25, 30, 40, for reducing the transmission delay (abstract, Fig. 1-4).

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles Chow whose telephone number is (703)-306-5615. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban, can be reached at (703)-305-4385.

Any response to this action should be mailed to:

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or faxed to: (703) 872-9306 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Charles Chow C.C.

September 28, 2004.

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